

1.0 Introduction

The Texas Department of Transportation (TxDOT) contracted with Southwest Research Institute (SwRI) to develop the Model Deployment Initiative (MDI) for the TxDOT TransGuide System. The TxDOT TransGuide Advanced Traffic Management System (ATMS) served as the foundation for the MDI development activities. A primary objective of this MDI program was to demonstrate various Intelligent Transportation System (ITS) technologies for the U.S. Federal Highway Administration (FHWA). This report focuses on the six MDI project areas developed by SwRI for TxDOT. These project areas include:

- **Data Server:** The Data Server is the central archive of travel speeds encompassing 600 miles of freeways and arterials in the San Antonio metropolitan area. These data are collected from TransGuide traffic data, traffic accident reports, lane closures, and automated vehicle identification data.
- **Automated Vehicle Identification:** The Automated Vehicle Identification (AVI) sensors detect vehicles that are equipped with AVI tags. The sensors transmit the data to the TransGuide Operations Center (TOC), where travel times and speeds are computed for the instrumented roadways.
- **Railroad Grade Crossing System:** The Advanced Warning for Railroad Delays (AWARD) System is designed to help avoid delays caused by railroad operations that cross freeway access or frontage roads. The AWARD system, which monitors four grade crossings using six sensors, alerts drivers to potential delays near freeway exits and entrances.
- **Traveler Information Kiosks:** Kiosks provide current traffic conditions, motorist services, transit, and airport information,

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key areas of interest in the region, weather maps, and data from touch-screen monitors. Forty Kiosks are deployed as part of the program.

- **In-Vehicle Navigation System:** This system provides drivers with real-time traffic congestion and incident information, vehicle location, and information on regional points of interest. As part of the program, 590 units were distributed to local transportation agencies, law enforcement agen-

cies, emergency response organizations, and various government organizations.

- **Emergency Medical Services Management System (LifeLink):** LifeLink permits two-way video teleconferencing between emergency medical personnel in a hospital and paramedics in an ambulance en route to the hospital. Additionally, the system transfers vital statistics data from the ambulance to the hospital.

This report documents the high-level design of the TransGuide MDI implementation.